Amendment to the Claims:

1. (Currently amended) A magnetic resonance imaging system comprising:

[[-]] an acquisition module configured for acquiring first magnetic resonance signals for a central portion of k-space using a first magnetic resonance frequency and for acquiring second magnetic resonance signals for a peripheral portion of k-space using a second magnetic resonance frequency different from the first magnetic resonance frequency[[,]];

[[-]] a data module configured for combining first k-space data corresponding to the first magnetic resonance signals and second k-space data corresponding to the second magnetic resonance signals to form a full k-space; and

[[-]] an image module configured for generating an image by transformation of the full k-space to image space.

2. (Currently amended) The system as claimed in claim 1, wherein the data module for combining first and second k-space data are ~~adapted~~ configured to substitute the first k-space data for part of the second k-space data to form a full k-space.

3. (Currently amended) The system as claimed in claim 1, wherein the data module for combining first and second k-space data are ~~adapted~~ configured to add the first k-space data to the second k-space data to form a full k-space.

4. (Currently amended) The system as claimed in claim 1, wherein the acquisition module for acquiring first magnetic resonance signals are ~~adapted~~ configured to acquire signals from protons.

5. (Currently amended) The system as claimed in claim 4, wherein the acquisition module for acquiring first magnetic resonance signals are ~~adapted~~ configured to acquire signals from protons in another substance than H_2O.

6. (Currently amended) The system as claimed in claim 1, wherein the acquisition module for acquiring first magnetic resonance signals are ~~adapted~~ configured to acquire signals from non-proton nuclei.

7. (Currently amended) The system as claimed in claim 6, wherein the acquisition module for acquiring first magnetic resonance signals are ~~adapted~~ configured to acquire signals from hyperpolarized non-proton nuclei.

8. (Currently amended) The system as claimed in claim 1, wherein the acquisition module for acquiring first magnetic resonance signals are ~~adapted~~ configured to acquire signals from electron spins.

9. (Currently amended) The system as claimed in claim 1, wherein the acquisition module for acquiring second magnetic resonance signals are ~~adapted~~ configured to acquire signals from protons.

10. (Currently amended) The system as claimed in claim 9, wherein the acquisition module for acquiring second magnetic resonance signals are ~~adapted~~ configured to acquire signals from protons in H_2O.

11. (Currently amended) A magnetic resonance imaging method[[,]] ~~the method~~ comprising: ~~the steps of~~

[[-]] acquiring first magnetic resonance signals for a central portion of k-space using a first magnetic resonance frequency[[,]];

[[-]] acquiring second magnetic resonance signals for a peripheral portion of k-space using a second magnetic resonance frequency different from the first magnetic resonance frequency[[,]];

[[-]] combining the first k-space data corresponding to the first magnetic resonance signals and the second k-space data corresponding to the second magnetic resonance signals to form a full k-space; and

[[-]] generating an image by transformation of the full k-space to image space.

12. (Currently amended) A carrier or memory storing a computer program executable by a computer to perform a method comprising:

[[-]] acquiring ~~computer instructions to acquire~~ first magnetic resonance signals for a central portion of k-space using a first magnetic resonance frequency[[,]];

[[-]] acquiring ~~computer instructions to acquire~~ second magnetic resonance signals for a peripheral portion of k-space using a second magnetic resonance frequency different from the first magnetic resonance frequency[[,]];

[[-]] combining the ~~computer instructions to combine~~ first k-space data corresponding to the first magnetic resonance signals and the second k-space data corresponding to the second magnetic resonance signals to form a full k-space; and

[[-]] generating ~~computer instructions to generate~~ an image by transformation of the full k-space to image space[[,]]

~~when the computer program is executed in a computer~~.

13. (New) The system as claimed in claim 1, wherein the acquisition module is configured to acquire the first magnetic resonance signals from a first nuclear species and to acquire the second magnetic resonance signals from a second nuclear species different from the first nuclear species.

14. (New) The system as claimed in claim 1, wherein the acquisition module is configured to acquire the first magnetic resonance signals from a first nuclear species other than the ^{1}H nuclear species and to acquire the second magnetic resonance signals from the ^{1}H nuclear species.

15. (New) The system as claimed in claim 1, wherein the acquisition module is configured to acquire the first magnetic resonance signals from electron spins and to acquire the second magnetic resonance signals from the ^{1}H nuclear species.

16. (New) The magnetic resonance imaging method as claimed in claim 11, wherein the first magnetic resonance signals are from a first nuclear species and the second magnetic resonance signals are from a second nuclear species different from the first nuclear species.

17. (New) The magnetic resonance imaging method as claimed in claim 11, wherein the first magnetic resonance signals are from a nuclear species other than the ^{1}H nuclear species, and the second magnetic resonance signals are from the ^{1}H nuclear species.

18. (New) The magnetic resonance imaging method as claimed in claim 11, wherein the first magnetic resonance signals are from electron spins and the second magnetic resonance signals are from the ^{1}H nuclear species.